

Vitamin A increases the presence of the HIV virus in breast milk

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Vitamin A and beta-carotene supplements are unsafe for HIV-positive women who breastfeed because they may boost the excretion of HIV in breast milk---thereby increasing the chances of transmitting the infection to the child, a pair of new studies suggest.

Epidemiologist Eduardo Villamor of the University of Michigan School of Public Health says transmission of [HIV](#) through breastfeeding happens because breast milk carries viral particles that the baby ingests. Supplementing HIV-positive women with [vitamin A](#) and beta-carotene appears to increase the amount of the virus in milk.

This may be partly because the same nutrients raise the risk of developing subclinical mastitis, an inflammatory condition which causes [blood plasma](#) to leak into the mammary gland and viral particles to then leak into the milk, he says.

Villamor's findings appear in two separate articles in the [American Journal of Clinical Nutrition](#) and the Journal of Nutrition. The results are significant because they provide biological explanations for a previous report that supplementation with these nutrients increased chances of mother-to-child HIV transmission.

"So there are now strong arguments to consider the implications of supplementation to pregnant or lactating women who are HIV-positive," said Villamor, associate professor of epidemiology and environmental health sciences. "It does not look like it's a safe intervention for them."

Mother-to-child HIV transmission is a huge problem in developing countries where HIV is prevalent, Villamor said. In 2008 alone, there were 430,000 new infections and more than 95 percent of those resulted from mother-to-child transmission. Most were in sub-Saharan Africa.

In one of the studies, 1,078 HIV-infected women were divided into four groups. The test groups received either 5,000 IU of vitamin A and 30 mg of beta-carotene everyday during gestation and the lactation period, or a control regimen. The dose for beta-carotene was higher than the amount usually provided by the diet, according to Villamor. Smaller doses might not have the same effect.

Villamor said tests trying to separate the effects of each nutrient showed that beta-carotene seemed to increase the amount of HIV in [breast milk](#) independent of vitamin A, but an effect of vitamin A alone cannot be ruled out. The findings are potentially controversial because vitamin A is an important supplement for postpartum women in countries where HIV infection is highly prevalent, but supplementation programs may not take into account a woman's HIV status.

"The takeaway is that daily supplementation of HIV-infected pregnant or lactating women with vitamin A and beta-carotene at the doses tested is probably not safe and efforts need to be strengthened on preventing mother-to-child transmission through other interventions such as anti-retroviral regimens," Villamor said.

More information: -- Study 1 ("Effect of Vitamin Supplements on HIV Shedding in Breast Milk"): [www.ajcn.org/cgi/search?fullte ... &submit=yes&x=12&y=8](http://www.ajcn.org/cgi/search?fulltext=&submit=yes&x=12&y=8)
-- Study 2 ("Vitamin Supplementation Increases Risk of Subclinical Mastitis in HIV-Infected Women"): [jn.nutrition.org/cgi/search?fu ... submit=yes&x=15&y=11](http://jn.nutrition.org/cgi/search?fulltext=&submit=yes&x=15&y=11)

Provided by University of Michigan

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